



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/994,283	11/26/2001	Jin Young Chun	CU-2732 RJS	8829
26530	7590	01/09/2004	EXAMINER	
LADAS & PARRY 224 SOUTH MICHIGAN AVENUE, SUITE 1200 CHICAGO, IL 60604			SEFER, AHMED N	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 01/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/994,283	CHUN ET AL	
	Examiner	Art Unit	
	A. Sefer	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The amendment filed on October 17, 2003 has been entered; no new claims have been added.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Fig. 3 does not include reference numerals 12, 16, 21, 22 and 24. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation “an electrically conductive layer formed on the outer surfaces of the ... and the upper substrate” is not disclosed in the specification to enable one skilled in the art to make and/or use the invention. Without this information it would take undue experimentation to make and use the claimed invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 and 2, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Leupp et al. USPN 3,978,580.

Leupp et al. disclose (see figs. 3-10 and col. 2, lines 45-68) a liquid crystal display device comprising: a supporting column 25/33 provided for an upper substrate 15 and vertically extended from the upper substrate to the lower substrate so as to maintain a uniform cell gap therebetween; a contact part 22/24 provided for a common line disposed at a peripheral region outside an active area of the lower substrate 13 opposite to the upper substrate, wherein the contact part faces the supporting column at a corresponding position so as to guide a communication between the supporting column and the common line; and an electrically conductive layer 21/35 formed on the outer surfaces of the supporting column and the upper substrate, wherein a portion of the electrically conductive layer on the supporting column is joined to the common line within the contact part so as to establish a signal interconnection between the lower substrate and the upper substrate.

As for claim 2, Leupp et al. disclose an insulating layer 25 provided for the common line, and the contact part is a contact hole formed in the insulating layer so as to expose a portion of the common line.

Art Unit: 2826

7. Claims 3 and 4, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Leupp et al. USPN 3,978,580.

Leupp et al. disclose (see figs. 3-10 and col. 2, lines 45-68) a method for fabricating a liquid crystal display device, comprising: providing a supporting column 25/33 for an upper substrate 15, wherein the supporting column is vertically extended from the upper substrate so as to maintain a uniform cell gap therebetween; forming an electrically conductive layer 21/35 on the outer surfaces of the supporting column and the upper substrate; providing a contact part 22/24 for a common line disposed at a peripheral region outside an active area of the lower substrate 13 confronting the upper substrate, wherein the contact part faces the supporting column at a corresponding position; and uniting the lower substrate and the upper substrate so that a portion of the electrically conductive layer on the supporting column is joined to the common line within the contact part, thereby establishing a signal interconnection between the lower substrate and the upper substrate.

As for claim 4, Leupp et al. disclose an insulating layer 25 provided for the common line, and the contact part is a contact hole formed in the insulating layer so as to expose a portion of the common line.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2826

9. Claims 1 and 2, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimura et al. USPN 5,973,763 in view of Watanabe et al. USPN 6,573,969.

Fujimura et al. disclose in figs. 1, 2 and 7-9 a liquid crystal display device comprising: a supporting column 13 provided for an upper substrate 20 and vertically extended from the upper substrate to the lower substrate 10 so as to maintain a uniform cell gap therebetween; a contact part 17/18 provided for a common line disposed at a peripheral region outside an active area A of the lower substrate opposite to the upper substrate, wherein the contact part faces the supporting column at a corresponding position so as to guide a communication between the supporting column and the common line, but do not disclose an electrically conductive layer formed on the outer surfaces of the supporting column and the upper substrate.

Watanabe et al disclose in figs. 7 and 10 a liquid crystal display device comprising: a supporting column 29 provided for an upper substrate 200/230 and vertically extended from the upper substrate to the lower substrate 100/150 so as to maintain a uniform cell gap therebetween; an electrically conductive layer 33 formed on surfaces of the supporting column and the upper substrate, wherein a portion of the electrically conductive layer on the supporting column is joined to the common line within a contact part so as to establish a signal interconnection between the lower substrate and the upper substrate.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Watanabe et al with the device of Fujimura et al since that would provide a device which produces high quality images as taught by Watanabe et al.

As for claim 2, Fujimura et al. disclose (see col. 7, lines 1-6) an insulating layer

provided for the common line, and the contact part is a contact hole formed in the insulating layer so as to expose a portion of the common line.

10. Claims 3-5, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimura et al. USPN 5,973,763 in view of Ishikawa et al. USPN 6,414,733.

Fujimura et al. disclose in figs. 1, 2 and 7-9 a method for fabricating a liquid crystal display device, comprising: providing a supporting column 13 for an upper substrate 20, wherein the supporting column is vertically extended from the upper substrate so as to maintain a uniform cell gap therebetween; providing a contact part 17/18 for a common line disposed at a peripheral region outside an active area of the lower substrate 10 confronting the upper substrate, wherein the contact part faces the supporting column at a corresponding position; and uniting the lower substrate and the upper substrate, but do not disclose forming an electrically conductive layer on the outer surfaces of the supporting column and the upper substrate.

Ishikawa et al disclose (see fig. 2, col. 4, lines 25-37 and) a method for fabricating a liquid crystal display device comprising: providing a supporting column 14 for an upper substrate 11, wherein the supporting column is vertically extended from the upper substrate so as to maintain a uniform cell gap therebetween; providing a contact part (see col. 9, lines 34-39); and forming an electrically conductive layer 16 including an indium tin oxide (ITO) (as in claim 5) on the outer surfaces of the supporting column and the upper substrate, so that a portion of the electrically conductive layer on the supporting column is joined to the common line within the contact part, thereby establishing a signal interconnection between the lower substrate and the upper substrate.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teachings of Ishikawa et al with the device of Fujimura et al since that would increase the display performance of the device as taught by Ishikawa et al.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Song US PG-Pub 2002/0039166 discloses Liquid crystal display having support spacer formed on common electrode for constantly maintaining gap pair of insulating substrates.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (703) 605-1227

Application/Control Number: 09/994,283

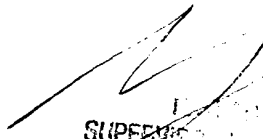
Page 8

Art Unit: 2826

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (703) 308-6601.

ANS

January 4, 2004


SUPERVISOR
TECHNOLOGY